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Resource News-Winter 1995-96

Resource News

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Weather data wings its way among students; Earth science network aids learning electronically

Some Nebraska junior high students have their heads in the clouds.

But it's helping expand their knowledge of climate, computers and electronic communications.

Encouraging the use of electronic media and data exchange in education is the goal of the Students and Teachers Exchanging Data, Information and Ideas (STEDII) project, said Dave Gosselin, project manager for the Nebraska Earth Science Education Network (NESEN) and research geochemist with the University of Nebraska-Lincoln Conservation and Survey Division, one of NESEN's sponsors. The STEDII project is coordinated by NESEN and the UNL Department of Agricultural Meteorology.

Students at participating Nebraska schools record daily weather observations such as temperature, relative humidity and cloud cover and exchange this data with other schools via electronic and conventional mail.

"Our challenge was getting teachers focused on using electronic communications when they are all teaching different subjects and doing different things," Gosselin said. "Weather is something we all have in common."The project, sponsored by NESEN, is part of NESEN's work with K-12 earth

*(See **Weather data** continued on page 3.)*

Pesticide guides help map out proper application

Pesticide users in Nebraska now have a little help determining application methods that best prevent groundwater contamination in their area.

The first part of a county map series called "Pesticides and Groundwater: An Applicator's Map and Guide to Prevent Groundwater Contamination" is complete, according to Mark Kuzila, head soil scientist with the University of Nebraska-Lincoln Conservation and Survey Division (CSD) and co-author of the series.

The series is being produced as a joint effort by CSD, the Nebraska Department of Agriculture and UNL Department of Agronomy.

Each guide includes a color map of the relative vulnerability to contamination and a listing of pesticide types and their respective risks to groundwater contamination.

The guides also provide information about the depth to water and soil conditions in each county, as well as the leaching potential of many pesticides common in Nebraska.

Kuzila said the guides are intended to provide pesticide users with general information and guidelines about what factors to consider when making pesticide application decisions.

Eight guides were completed in January: Box Butte, Buffalo, Dawson, Hall, Hamilton, Kearney, Merrick and Phelps. Counties slated for completion by the end of January are Adams, Cheyenne, Holt and Scotts Bluff.

Nineteen more counties should be done by September: Sheridan, Morrill, Garden, Deuel, Keith, Lincoln, Nuckolls, Lancaster, Jefferson, Platte, Colfax, Dodge, Saunders, Butler, Polk, York, Seward, Saline and Gage.

Copies of the guides are available free from the Conservation and Survey Division, Map Sales, University of Nebraska-Lincoln, 113 Nebraska Hall, Lincoln, NE, 68588-0517.

Two important GIS symposia come to Lincoln

Already this year Lincoln has hosted one important symposium on the dynamic applications of geographic information systems (GIS)--computer-based systems for handling maps and other forms of spatial information--and will host another this spring. These systems are transforming the handling of map data in the way word processing and desktop design have changed publishing.

The 1996 Nebraska GIS Symposium was held Feb. 20-22 at the Cornhusker Hotel in Lincoln. In addition, the 1996 International Geoscience and Remote Sensing Symposium will be held May 27-31, also at the Cornhusker Hotel.

The Nebraska GIS Symposium was the first of its kind in the state and drew more than 300 participants, according to Jim Merchant, associate director of the Conservation and Survey Division's Center for Advanced Land Management Information Technologies (CALMIT) at the University of Nebraska-Lincoln.

Merchant, one of the organizers of the symposium, said the event featured workshops, exhibitors, nationally-known speakers and presentations focusing on GIS and its practical applications.

"Breakout sessions" covered the use of GIS

*(See **GIS symposium** continued on page 3.)*

The newsletter of the Conservation and Survey Division
Institute of Agriculture and Natural Resources/University of Nebraska-Lincoln

New hire at CSD will research groundwater and surface-water relationships, groundwater geochemistry and glacial geology

A new faculty member with the University of Nebraska-Lincoln Conservation and Survey Division (CSD) will focus his research on groundwater-surface water interaction in lakes and wetlands, regional groundwater geology and geochemistry, glacial deposits in eastern Nebraska and the uses of environmental isotopes.

CSD welcomed a new hydrogeologist to its ranks in January, when Ed Harvey joined it as an assistant professor.

In the year between his acceptance of the job and his move to Lincoln, Harvey has been completing his Ph.D. at the University of Waterloo in Ontario, Canada, a school known for excellence in groundwater geology. His work focused on groundwater- lake water interaction in deep lakes, specifically western Lake Ontario.

He summarized this work in a lecture at UNL entitled "Methods for Hydrogeologic Studies in Deep Lakes" on Jan. 26. The lecture was part of the UNL Department of Geology T. Mylan Stout Lecture Series.

Harvey said he has a strong desire to "beef up" earth science education because as a high school student in Indiana, he was advised to avoid earth science because it was considered too basic for serious students. It had a typical "rocks for jocks" image, he said.

"All serious science students were steered clear of earth science because it was considered a waste of time," Harvey said.

He wants to become involved in the Nebraska Earth Science Education Network (NESEN) and is looking into perhaps creating an hour-long public television program similar to "Nova" or "Nature," focusing on groundwater.

Harvey has taught university courses in structural geology, groundwater/surface-water interaction and geologic field mapping, and plans to teach courses in isotope hydrogeology as well as groundwater-surface water interaction at UNL.

Groundwater geologist gets kudos for work with trees

A researcher with the University of Nebraska-Lincoln Conservation and Survey Division (CSD) was recognized last year for his work supporting tree planting and conservation by two important state forestry organizations.

Jim Goeke, CSD research hydrogeologist located at the West Central Research and Extension Center in North Platte, was presented with the State Foresters Award by the Nebraska State Forest Service and the Nebraska State Tree Planters Award by the Nebraska Statewide Arboretum.

Goeke received the forest service award at the annual Community Forestry Conference in North Platte last fall. The State Foresters Award isn't given out on a regular basis, but only when an especially deserving nomination comes forward, said State Forester Gary Hergenrader.

"He's been a real strong advocate in North Platte and western Nebraska" for forestry-related issues, Hergenrader said of Goeke.

One of nine individuals or organizations to receive awards at the annual Nebraska Statewide Arboretum awards ceremony in November at Mahoney State Park near Ashland, he received the Nebraska Tree Planters State Award.

In 1986, Goeke coordinated a program called "Trees for North Platte," which raised $29,000 to qualify for a matching grant from the Kiewit Foundation. He also helped shape the Nebraska Tree Recovery Act. He serves on the North Platte Tree Board and is a member of the Nebraska Statewide Arboretum, where he served on the board of directors and was president for two years.

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Weather data continued from page 1

science students that was funded by a grant from the National Aeronautics and Space Administration (NASA). The grant was to enhance electronic communication among science educators and students and acquaint students with earth science information available through electronic sources such as the Internet.

Polla Hartley, science teacher at Albion Public Schools, and 34 students in her two 7th-grade science classes are involved in the project. Students work in pairs when collecting weather data outdoors during class periods, Hartley said.

"Data is collected during the last five minutes of class, or during slack times when students have time to do it," Hartley said. "We split the week so that different students are responsible for collecting the data during the week."

Students participating in the STEDII project learn to use various weather-monitoring instruments, including a barometer, a thermometer and a sling psychrometer (used for measuring relative humidity).

After collection, students enter the weather data into a computer and post it on the World Wide Web on their own time, Hartley said.

Working with the Internet and the World Wide Web has been an outstanding experience for her students, Hartley said.

"For many students, this is their first exposure to the Internet," Hartley said. "They really enjoy it and have become anxious and eager to work with the computer."

Al Musson, earth science teacher at O'Neill Public Schools, said the 67 students in his 8th-grade earth science classes have shown great interest in the project but need to be challenged in order to maintain that interest.

"Students are excited about it, but there's a chance that the excitement might wear thin unless we increase our emphasis on the relevance of this information," Musson said. "We don't want them to view this as a chore or simply a chance to get out of school."

Musson and Hartley agreed that the most challenging aspect of the STEDII project in its early stages was making certain that the data collected by students was accurate.

"There were times when I would look at the data and say `Hmm...are you sure these are right?,'" Hartley said with a laugh. "The students are on their second or third time through the collection process now, though, and are breezing through it with excellent results."

Musson said the project provides students with the opportunity to make observations and record data, but presents a challenge when such a large group of students is involved.

"When you have 134 eyeballs looking at one sling psychrometer, you really have to consider the logistics you're dealing with," Musson said.

Hartley said working closely with STEDII participants across the state has been particularly helpful in developing the project at Albion. Several ideas for the project evolved from discussions held with other STEDII project leaders at the 1995 Nebraska Association of Teachers of Science (NATS) Conference, held last fall at Camp Calvin Crest near Fremont.

"I talked with several STEDII teachers at NATS to share ideas about what was working and what wasn't," Hartley said.

In addition to the electronic communications skills acquired from the project, students are gaining practical knowledge about weather characteristics, patterns and trends, Gosselin said.

"Eventually, students could use their knowledge to organize a "weather club" that would make daily weather predictions and submit them to the local newspaper," Gosselin said. "It would be a great way to generate interest in the project among students and the general public."

Individuals interested in participating in the STEDII project or in getting more information should contact David Gosselin, at (402) 472-8919 or through e-mail at gosselin@unlinfo.unl.edu.

GIS symposium continued from page 1.

in agriculture, environmental protection, natural resources management, land records, tax mapping, emergency services, land use and planning. Workshops on the first day focused on mapping with GIS and basic use of the Internet, global positioning systems and ArcView technology.

Sponsors for the symposium included the Professional Surveyors Association of Nebraska and the Nebraska GIS Steering Committee.

The response to the call for papers for the 1996 International Geoscience and Remote Sensing Symposium--known as IGARSS '96--has been very enthusiastic, said Ram Narayanan, associate professor of electrical engineering at the University of Nebraska-Lincoln and general chair of the symposium, which is called "Remote Sensing for a Sustainable Future."

"We received about 1,100 technical papers for the symposium and accepted about 900," said Narayanan, who is also a member of the UNL Center for Electro-Optics.

The final group of 900 papers consists of about 750 oral presentations and 150 poster sessions with author present. About a 50-50 split of U.S. participants and those from other countries is anticipated, he added.

Last year's IGARSS symposium was held in Florence, Italy, and the 1997 meeting is to be held in Singapore, Narayanan said.

"We put in a strong bid to get this in Lincoln, and I was thrilled that the strength and diversity of remote-sensing programs at UNL allowed us to be chosen," Narayanan said.

IGARSS '96 is organized by the Institute of Electrical and Electronics Engineers (IEEE) of Piscataway, N.J., and will feature a number of new programs, including an area for exhibitors to display recent developments in remote-sensing technology and a group of family-oriented sessions and tours.

The UNL Conservation and Survey Division's (CSD) Center for Advanced Land Management Information Technologies (CALMIT) will provide valuable technical support and planning assistance, Narayanan said.

Another upcoming GIS event is the 1996 MidAmerica GIS Symposium, to be held April 28-May 1 at the Hyatt Regency Crown Center Hotel in Kansas City, Mo. Merchant said the conference will be the fourth in a biennial series of symposia focusing on GIS in the Midwest.

For more information on the Nebraska or MidAmerica GIS Symposium, contact Jim Merchant, UNL CSD, 113 Nebraska Hall, Lincoln, NE, 68588, or phone (402) 472-7531. For more information on the International Geoscience and Remote Sensing Symposium, contact Ram Narayanan, UNL Department of Electrical Engineering, 242N Walter Scott Engineering Center, Lincoln, NE, 68588, (402) 472-5141.

Coming up: local, state and national meetings and workshops

February

Feb. 20—T. Mylan Stout Lecture: "The Hydrogeology of Wetlands" Don Siegel, Syracuse Univ. Bessey Hall, UNL, 4 p.m.

Feb. 20-22--Nebraska GIS Symposium. Cornhusker Hotel, Lincoln. Contact Larry K. Zink: (402) 471-3206; FAX: (402) 471-4157; email: lzink@doc.state.ne.us.

Feb. 21--North Platte River Basin Water Policy Conference, 4502 Ave. I, Scottsbluff, Neb., 10 a.m.-4 p.m. Contact NU Panhandle Education Center at (308) 632-1319.

Feb. 21--Water Resources Seminar: "Endangered Species Act Enforcement." Dave Mazour, Asst. Mgr., Central Nebraska Public Power; Bob McCue, Field Supvr., U.S. Fish and Wildlife Service. 116 L.W. Chase Hall, UNL, East Campus, 3 p.m.

Feb. 22--Environmental Studies Seminar: "Conservation of Threatened Tropical Ecosystems" by Kenneth Young, Univ. of Maryland-Baltimore County. UNL East Union, 4-5 p.m.

Feb. 27-28—Platte River Basin Ecosystem Symposium, Holiday Inn, Kearney. Contact Mike Eckert: (402) 472-0891.

Feb. 28--Water Resources Seminar: "Ecosystem Management." Paul Tebbel, Director, Audubon Society's Rowe Sanctuary; Dick Mercer, Ag. Producer. 116 L.W. Chase Hall, UNL East Campus, 3 p.m.

March

March 1—T. Mylan Stout Lecture:"Transgression in the Geological Record: How Variable Are the Deposits?" by Ron Steel, Wyoming Univ. Bessey Hall, UNL, 3:30 p.m.

March 5--Children's Groundwater Festival, Grand Island. Contact Groundwater Foundation at 1 (800) 858-4844.

March 6--Instream Flow Rights Discussion: Ron Bishop, Mgr., Central Platte NRD; Wes Sheets, Asst. Director of Fisheries and Wildlife Div., Nebraska Game and Parks Commission, Lincoln.-3 p.m.

March 7—T. Mylan Stout Lecture: "Latest Cretaceous to earliest Paleogene Mollusca of New Zealand and Chatham Islands: Changes in Composition as a Consequence of the Breakup of Gondwana and Extinction" by Jeff Stillwell, UNL Geology. Bessey Hall, UNL, 3:30 p.m.

March 11--Aqua-Fest. Wayne State College, Wayne. Contact Michael Lechner, (402) 254-6821.

March 12-13--Annual Nebraska Water Conference,"The Mighty Missouri: Past and Future." Red Lion Inn, Omaha. Contact (402) 472-3305.

March 15--T. Mylan Stout Lecture Series-"Acid Rock Drainage Impacts in the Robinson Mining District, Nevada," Mark Bloom, EnviroNiche, Boulder, Colo. Bessey Hall, UNL, 3:30 p.m.

March 22--Earth Wellness Festival. Southeast Community College. Call (402) 441-7180.

March 27--Water Resources Seminar: "Conjunctive Use Implications": J. David Aiken, Water Law Specialist, UNL; Jim Goeke, Hydrogeologist, Conservation and Survey, UNL. 116 L.W. Chase Hall, UNL, East Campus, 3 p.m.

March 28--Environmental Studies Seminar: "Importance of Geologic Research to Modern Environmental Issues, with Examples from Zuni, New Mexico" by Stephen Hall, Univ. of Texas at Austin. Nebraska Union, 4 p.m.

March 29—T. Mylan Stout Lecture Series-"Evolution of the Southern Ocean Fossil Flora" by Rosemary Askin, Ohio State Univ. and **"Late Quaternary Environments of the Southern Great Plains"** by Steve Hall, Univ. of Texas. Bessey Hall, UNL. First lecture: 2:30 p.m., second: 3:45 p.m.

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